CLAIMS

What is claimed is:

1. A method of manufacturing thin-walled containers (23) from film webs (4, 4a, 4b, 16, 16a, 16b) comprising the steps of:

   manufacturing a tubular structure (1, 1a, 1b) from at least one film web (4, 4a, 4b, 16, 16a, 16b);

   forming at least one fold (3) projecting into the tubular structure (1, 1a, 1b);

   ultrasonically joining sections of film webs (4, 4a, 4b, 16, 16a, 16b) of the folded tubular structure (1, 1a, 1b) lying flat and parallel on top of one another to form the containers (23).

2. The method as claimed in Claim 1, characterised in that the tubular structure (1) is produced from a film web (4) by folding over the film web (4) in the longitudinal direction of the film web (4) and joining together the adjacent lateral edges of the folded film web (4).

3. The method as claimed in Claim 1, characterised in that the tubular structure (1a) is manufactured from two film webs (4a, 4b) lying flat and parallel on top of one another, by joining together the adjacent lateral edges of each of the two film webs (4a, 4b).

4. The method as claimed in Claim 1, characterised in that the tubular structure (1b) is manufactured by placing two flat, parallel top-film webs (4a, 4b) together, one on top of the other, moving one side-film web (16a, 16b) in each case to the lateral edges of the flat, parallel top-film webs (4a, 4b) lying on top of the other, folding in the side-film webs (16a, 16b) and joining the respective mutually adjacent lateral edges of a side (16a, 16b) and top-film web (4a, 4b).

5. A method as claimed in any of the preceding Claims, characterised in that two diametrically opposing folds (3) are formed in the tubular structure (1, 1a, 1b).

6. A method as claimed in any of the preceding Claims, characterised in that the folds (3) are W-shaped.

7. A method as claimed in any of the preceding Claims, characterised in that ultrasonic welding and ultrasonic cutting are used to shape the contours of the container (23) in the area between the two diametrically opposing folds (3), and that the area of the folds (3) is designed as the bottom for the container (23) to stand on.

8. A method as claimed in any of the preceding Claims, characterised by blowing compressed air into the at least one film web (4) while manufacturing the tubular structure (1).

9. A method as claimed in any of the preceding Claims, characterised by an intermediate layer in the fold (3), the intermediate layer being designed in such a way that the film webs (4, 16) are prevented from fusing in the area of the intermediate layer.

10. The method as claimed in claim 9, characterised in that the intermediate layer is a metal coating joined integrally to the at least one film web (4, 16).

11. The method as claimed in Claim 9, characterised in that the intermediate layer is a travelling disc rotating in the fold (3).

12. The method as claimed in Claim 9, characterised in that the intermediate layer is a metal strip used to form the fold (3).

13. A method as claimed in any of the preceding Claims, characterised in that the film webs (4, 16) are fused together in the vicinity of their folding edges in the longitudinal direction of the tubular structure (1) in order to form sealing seams (26).

14. The method as claimed in Claim 13, characterised in that the folding edges located beside a sealing seam (26) form a loop (27) in cross-section.

15. A method as claimed in any of the preceding Claims, characterised in that transverse sealing seams in the film webs (4, 16) are designed in a saw-tooth shape.

16. The method as claimed in Claim 15, characterised in that the transverse sealing seams form curved lines, and cutting edges of the containers (23) are designed straight.

17. A method as claimed in any of the preceding Claims, characterised by feeding the film web (4, 16) obliquely towards a rotating guide roll (30) and subsequently performing ultrasonic welding with an ultrasonic welding device (8).

18. A method as claimed in any of the preceding Claims, characterised by ultrasonic cutting of the containers (23) comprising the steps of: by punching out cutting lines in advance and releasing the pre-punched containers (23) from the at least one film web (4, 16).

19. A method as claimed in any of the preceding Claims, characterised in that the film webs (4, 16) are folded in a frame and the folded film webs (4, 16) are moved on a supporting table relative to an ultrasonic welding device (8) in order to shape the containers (23).

20. A method as claimed in any of the preceding Claims, characterised in that at least one film web (4, 16) is pre-punched in order to create a weakened tearing line (31) to open the container (23).

21. A method as claimed in any of the preceding Claims, characterised in that at least one film web (4, 16) is profiled in order to form the weakened tearing line (31) to open the container (23).

22. The method as claimed in either of Claims 20 or 21, characterised in that the weakened tearing line (31) is worked in continuously.

23. The method as claimed in either of Claims 20 or 21, characterised in that the weakened tearing line (31) is formed by pre-punching or profiling by means of ultrasound.

24. A method as claimed in any of Claims 20 to 23, characterised in that the tearing line (31) is designed in a curved shape.

25. A method as claimed in any of Claims 20 to 24, characterised in that, in the case of a container (23) manufactured from a multi-layer laminate, an inner film web (4, 16) of the container (23) is designed more weakly in order to form the tearing line (31).

26. A method as claimed in any of Claims 20 to 25, characterised in that a film web (4, 16) of the container (23) is weakened to form the tearing line (31) before lamination of the film web.

27. A production facility for manufacturing thin-walled containers (23) from film webs (4, 4a, 4b, 16, 16a, 16b) according to the method claimed in any of the preceding Claims, with advancing means for continuously feeding at least one film web (4, 4a, 4b, 16, 16a, 16b), folding means for creating a tubular structure (1, 1a, 1b) from at least one film web (4, 4a, 4b, 16, 16a, 16b) and for forming at least one fold (3) projecting into the tubular structure (1, 1a, 1b), and with at least one ultrasonic welding device (8) for joining portions of film webs (4, 4a, 4b, 16, 16a, 16b) of the folded tubular structure (1, 1a, 1b) lying flat and parallel on top of one another in order to form the containers (23).

28. The production facility as claimed in Claim 27, characterised by two advancing means for continuously feeding one film web (4a, 4b) in each case, the advancing means being designed such that the film webs (4a, 4b) are capable of being guided over one another

such that they are flat and parallel, wherein an ultrasonic welding device (8) for joining the longitudinal side edges of the film webs (4a, 4b) lying on top of one another is disposed in the region of the lateral edges in each case.

29. The production facility as claimed in Claim 27, characterised by two advancing means for continuously feeding one top-film web (4a, 4b) each, the advancing means being designed in such a way that the top-film webs (4a, 4b) are guided over one another such that they are flat and parallel, and two further advancing means for continuously feeding one side-film web (16a, 16b) in each case towards the lateral edges of the top-film webs (4a, 4b) lying flat and parallel, one ultrasonic welding device (8) being disposed in each case to join together the longitudinal lateral edges of the adjacent top and side-film webs (4, 16) in the region of the lateral edges.

30. A production facility as claimed in any of Claims 27 to 29, characterised in that the ultrasonic welding device (8) has a supporting table (9) with ultrasonic vibrations applied to it for the film webs (4, 16) and a tool (10) in contact with the film webs (4, 16) and the supporting table (9) in the region of the junction points to be created.